

ACCESSION NR: AT5017507

ENCLOSURE: 01

Station	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
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Station I: ...  
Station II: ...

Table 1 Annual Variation of Total ...  
Data:

Card 4/7



ACCESSION NR: AT5017507

ENCLOSURE: 10

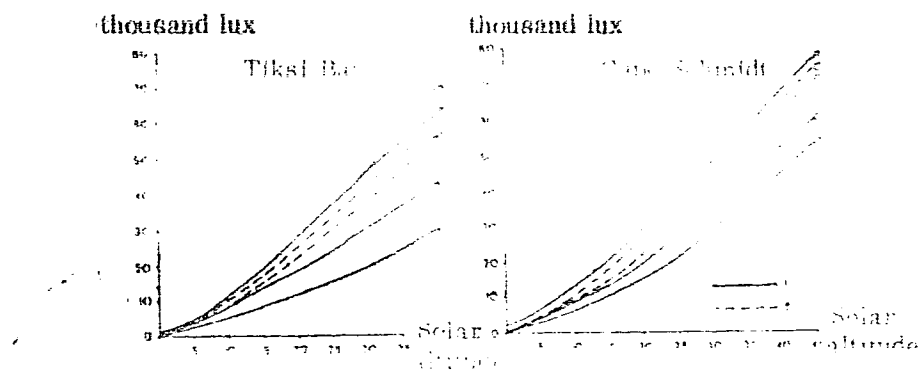


Figure 1. Total illumination in the Arctic. 1. summer; 2. spring

Card 6/7

L 63809-45

ACCESSION NR: AT5917507

ENCLOSURE

100.175 Bay	8.0	2.4	1.2	0.4	0.1	0.1
Madison Island	1.0	0.4	0.2	0.1	0.1	0.1
Madison Island	2.0	0.4	0.2	0.1	0.1	0.1

Table 2. Total and Scattered Illumination at Midnight in 1st Season of Year  
(Mean Monthly Value in thousands of lux)

Card 7/7

40838-66 EWT(1) GW  
ACC NR: AT6006701

SOURCE CODE: UR/2561/65/000/020/0049/0054

55  
B+

AUTHOR: Buzuyev, A. Ya.; Shesterikov, N. P.; Timerev, A. A.

ORG: none

TITLE: Albedo of ice in Arctic Seas based on data of aircraft observations

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.  
Problemy Arktiki i Antarktiki. Sbornik statey, no. 20, 1965, 49-54

TOPIC TAGS: ice, sea ice, actinometry, aerial reconnaissance, optic albedo, arctic climate

ABSTRACT: Actinometric observations from aboard ice reconnaissance aircraft and a "flying meteorological observatory" were performed during the summer and fall of 1963. The actinometric observations were accompanied by a recording of the ice conditions, cloud cover, and atmospheric phenomena. Pyranometers and albedometers were installed on the aircraft. The total number of observations selected for analysis amounted to about 900. The observations were made in the western sector of the Arctic. It was found that the hummocked condition of ice somewhat lessens the albedo, however this relationship was not well pronounced. Drift ice and fast ice have practically the same albedo value if their degree of disintegration and contamination are identical. An analysis of the observations shows that the basic factor

Card 1/2

UDC: 551.322:535

L 40838-66

ACC NR: AT6006701

determining the change of albedo of ice during the summer in the Arctic Seas is ice disintegration. As the ice melts the albedo of the snow-ice surface decreases from 75% at the starting period to 25% at maximal disintegration of the ice. Against a general background of a decrease of albedo a certain disruption of this tendency is observed at an ice disintegration value of 2-3 scale units (on a 5-point scale). At this period the albedo of the ice remains constant or even somewhat increases, which is explained by the fact that at this degree of disintegration drying of the ice occurs and the values of the albedo of the "dry" sections of ice and melt water on ice are substantially different. It is concluded, that the investigations confirmed the possibility of accomplishing actinometric observation from ice reconnaissance aircraft. An analysis of the material obtained shows that the data of the observations both with respect to standard instruments and to instruments specially fabricated for aircraft observations secure the same degree of accuracy in determining the albedo in the presence of an overcast sky. Orig. art. has: 1 table and 3 figures.

SUB CODE: 08/ SUBM DATE: 20Apr64/ ORIG REF: 003/ OTH REF: 000

Card 2/2 MLP



1. 00770-00

ACCESSION NR: AT5017508

Investigation of cloud albedo by the method of the "cloud albedo" method revealed that the  
cloud albedo is dependent on the cloud density and the cloud height.

Cloud albedo is

Cloud albedo is

by clouds at different levels as a function of the cloud density and actual albedo values (2 stations). Table 5 -- Albedo of clouds of different density  
and height. The dependence of the cloud albedo on the cloud density and height is shown in the figure.

Card 2/3



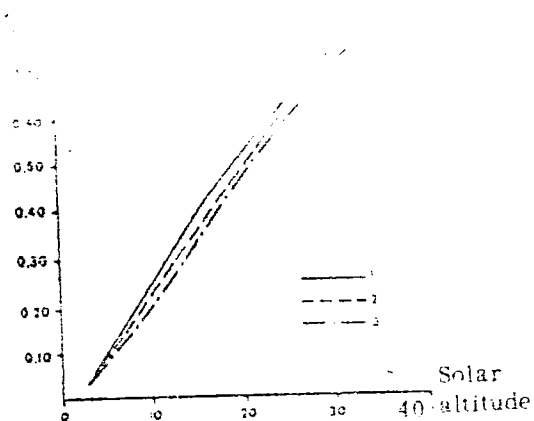


Figure 1. Dependence of total radiation on solar altitude: 1) observational data of expedition of 1963; 2) data obtained earlier by Koster; 3) data obtained earlier by Morshin.

Card 3/3

TIMERGALIYEV, K., kapitan

Bravery, courage, skill. Voen.vest. 41 no.10:66-68 0 '61.  
(MIRA 15:2)

(Parachute troops)

TIMERGAZIN, K.P.

Diabasic formation in the platform of Bashkiria. Vop. geol. vost.  
okr. Rus. platf. i IUzh. Urala no.2:63-91 '59. (MIRA 12:12)  
(Bashkiria--Diabase)

TIMERGAZIN, K. R.

USSR/Geology  
Iron Ores

May 49

"Devonian Oolitic Iron Ores in Western Bashkir and Eastern Tatar," L. M. Miropol'skiy, K. R. Timergazin, L. F. Solontsov, N. M. Kovyazin, M. L. Kiligina, Kazan Affiliate, Acad Sci USSR, 3 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 1

Devonian oolitic iron ore deposits are the most westerly in the Russian Platform and are important as a criterion. Gives sites of deposits and describes various strata and their composition. Submitted by Acad D. S. Belyankin, 2 Mar 49

PA 50/49T47

COMMON ELEMENTS											
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13											

TIMERGAZIN, K.R.; MIRONOV, S.I., akademik.

Significance of jaspilite boulder finds in western Bashkiria.  
Dokl.AN SSSR 91 no.4:931-933 Ag '53. (MLRA 6:8)

1. Akademiya nauk SSSR (for Mironov). 2. Bashkirskiy filial  
Akademii nauk SSSR (for Timergazin).  
(Bashkiria--Petrology) (Petrology--Bashkiria)

TIMERGAZIN, K.R.

Effusive rocks in the sedimentary deposit of western Bashkiria.  
Dokl.AN SSSR 94 no.6:1157-1158 F '54. (MLRA 7:2)

1. Bashkirskiy filial Akademii nauk SSSR.  
(Bashkiria--Geology) (Geology--Bashkiria)

Timergazin, K.R.

Genesis of sulfides in Devonian and older rocks in the eastern Russian platform. K. R. Timergazin. *Doklady Akad. Nauk S.S.S.R.* 195, 346 (1969). Pyrite, marcasite, sphalerite, and galena as hydrothermal deposits from the crystalline complexes, are enriched in veinlets associated with calcite and siderite in the overlying sediments. In the Kaltasa region (Bashkiria), the occurrence of pyrite in quartz-chalcedony concretions in dolomites, or in red sandstones of the Tartar S.S.R. is characteristic. Pyrite and marcasite are typical for vertical veinlets with carbonates, metasomatically replacing elastic grains in sandstone of the Upper Bavl complex, and galena + pyrite in polymict sandstones and dolomite limestones sometimes, with pseudomorphs after org. material, even at a rather great distance from the fissures. Besides the overwhelming facts in favor of the low-temp. hydrothermal origin of the sulfides described, the occurrence of authigenic pyrite is not entirely excluded, e.g. in rounded pebbles or thin layers in bituminous horizons of the Devonian sediments. W. Eitel



TIMERGAZIN, K.R.

Hydrothermal sulfates in Predevonian and Devonian sediments of the western Bashkiria. K. R. Timergazin. *Doklady Akad. Nauk S.S.S.R.* 105, 562-3(1955).—Barite, celestite, anhydrite, and gypsum are secondary hydrothermal formations in sandstones and terrigenous dolomites of the Devonian and Predevonian age. Especially, barite occurs in the Lower Predevonian layers in veinlets which are in higher horizons included in carbonate veins. Combined barite-celestite and marcasite-calcite veins with barite and pyrite inclusions are described. A pale rose-colored anhydrite was deposited after calcite; pyrite on the salt bands is also younger than calcite. The terrigenous Devonian layers usually contain only anhydrite; barite, celestite,

and gypsum are in subordinate amounts. The anhydrite fills cavities and especially cements the breccious dolomite of the Lower Zhigetsk horizons of Salikhovo. Anhydrite is very constantly associated with secondary calcite, dolomite, siderite, and pyrite. W. Bitel

TIMERGAZIN, K.R.

Crystalline rocks in the foundation of western Bashkiria. Vop.  
geomorf. i geol. Bashk. no.1:125-133 '57. (MIRA 11:4)  
(Bashkiria--Rocks, Crystalline and metamorphic)

TIMBERGAZIN, K.R.

Crystalline bedrock of western Bashkiria. Geol. nefi 1 no.6:24-31  
Je '57. (MLRA 10:8)

(Bashkiria--Rocks, Crystalline and metamorphic)

TIMERGAZIN, K. R., Doc Geol-Mineralogical Sci -- (diss)

"Pre-Devonian Formations of Western Bashkiria and Their  
*Petroleum Bearing*  
~~Naphta~~ Gas ~~Content~~ Potential." Ufa, 1958. 15 pp (*Inst of Petroleum*  
~~Naphta~~)

~~Inst~~ of Acad Sci USSR. Mining-Geol Inst, Bashkir ~~A~~ffiliate  
of Acad Sci USSR), 200 copies (KL 40-58, 113)

TIMERGAZIN, K.R.

Diabasic rocks in the western part of Bashkiria. Geol. nefi 2  
no.12:36-43 D '58. (MIRA 12:2)

1. Bashkirskiy filial AN SSSR.  
(Bashkiria—Rocks, Igneous)

TIMERGAZIN, K.R.

Pre-Devonian sediments in western Bashkiria. Vop.geol.vost.okr.  
Rus.platf. i IUzh. Urala no.1:5-26 '58. (MIRA 12:4)  
(Bashkiria--Geology, Stratigraphic)

KRAUZE, S.N., otv.red.; MIKRYUKOV, M.F., red.; OGARINOV, I.S., red.;  
OLLI, A.I., red.; ROZANOV, L.N., red.; TIMERGAZIN, K.R., red.;  
TYAZHEVA, A.P., red.; SIDOROV, V.V., red.; SHAFIN, I.G., tekhn.red.

[Problems in the geology and petroleum potential of Devonian  
deposits of western Bashkiria and adjacent provinces] Voprosy  
geologii i neftenosnosti devonskikh otlozhenii Zapadnoi Bashkirii  
i smezhnykh oblastei; materialy nauchnoi sessii, posviashchennoi  
voprosam geologii i neftenosnosti devona Zapadnoi Bashkirii i smezh-  
nykh oblastei. Ufa, 1958. 137 p. (MIRA 12:6)

1. Akademiya nauk SSSR. Bashkirskiy filial, Ufa. Gorno-geologicheskii  
institut.

(Bashkiria--Petroleum geology)

TIMERGAZIN, Kadyr-Rakhimovich; OLLI, A.I., prof., doktor geologo-mineralog.nauk, otv.red.; POROYKOV, Yu.D., red.; SHAFIN, I.G., tekhn.red.

[Pre-Devonian formations in western Bashkiria and their oil and gas potentials] Dodevonskie obrazovaniia Zapadnoi Bashkirii i perspektivy ikh neftegazonosnosti. Ufa, Akad.nauk SSSR, Bashkirskii filial gorno-geol.in-t, 1959. 311 p.  
(MIRA 12:10)

(Bashkiria--Petroleum geology)



TIMERGAZIN, K.R.

Stratigraphy of old sediments in western Bashkiria and  
correlation with their equivalents in other regions of the  
Russian Platform and the Urals. Trudy VNIIGNI no. 19:24-44  
'59. (MIRA 13:12)

(Russian Platform--Geology, Stratigraphic)  
(Ural mountains--Geology, Stratigraphic)

TIMERGAZIN, K.R., otv.red.; BELYAKOVA, Ye.V., red.izd-va; KOVAL'SKAYA,  
I.F., tekhn.red.

[Old sediments in western Bashkiria] Drevnie otlozheniia  
Zapadnoi Bashkiri. Moskva, Izd-vo Akad.nauk SSSR, 1960. 119 p.  
(MIRA 14:1)

1. Akademiya nauk SSSR. Bashkirskiy filial, Ufa. Gorno-geologi-  
cheskiy institut.

(Bashkiria--Sediments (Geology))

TIMERGAZIN, K.R.

Old oil field on the western slope of the Southern Urals.

Vop.geol.vost.okr.Rus.platf.i IUzh.Urala no.6:61-66 '60.

(MIRA 14:7)

(Kara-Tau—Petroleum geology)

TIMERGAZIN, K.R.

Discovery of Silurian sediments in the Bashkir portion of the  
Ural Mountain region. Geol. nefti i gaza 5 no. 5:54-56 My '61.  
(MIRA 14:4)

1. Gorno-geologicheskii institut Bashkirskogo filiala Akademii  
nauk SSSR.

(Bashkiria--Geology, Stratigraphic)

TIMERGAZIN, K.

Geological conference on the upper Pre-Cambrian of the eastern  
Russian Platform. Geol. nefti i gaza 5 no. 12: 59-60 D '61.

(MIRA 14: 11)

(Russian Platform: Geology, Stratigraphic)

TIMERGAZIN, K.R.

Wholly stripped section of upper Bavly deposits in the Cis-Ural  
trough. Dokl. AN SSSR 145 no.1:176-178 J1 '62. (MIRA 15:7)

1. Gorno-geologicheskii institut Bashkirskego filiala AN SSSR.  
Predstavleno akademikom D.V. Nalivkinym.  
(Sterlitamak region--Geology, Stratigraphic)

K.R. Timergazin; obituary, 1913-1964. Izv. AN SSSR. Ser. geol. 28  
no.11:105-106 N'63. (MIRA 17: )

TIMERIAEV, C. A.

"Darwin and Marx." (p. 198)  
by Timeriasev, C. A.

SO: Advances in Modern Biology (Uspekhi Sovremennoi Biologii)  
Vol. XI, No. 2, 1939



AYGISTOVA, S.Kh.; LAZAREV, G.I.; TIMERKAYEVA, Z.P.

Analysis of the operation of a high-frequency electric desalting unit on field No.1 of the Oil Field Administration of the Al'metyevsk Petroleum Trust. Nefteprom. delo no.9:19-23 '63. (MIRA 17:4)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut i Nefteprom'slovoye upravleniye "Al'met'yevneft".

DEREVICI, A.; SARATEANU, D.; BRONITKI, A.; PETRESCU, A.; ROTHSCHILD, L.;  
DRAGANESCU, N.; SATMARI, C.; PETRUSCA, J.; STANCU, A.; TIMERMAN, A.;  
PIRONCOF, M.

Dynamics of serum antibodies against influenza in children and  
adults vaccinated with autochthonous vaccine; role of non-specific  
excitants. Stud. cercet. inframicrobiol., Bucur. 6 no.3-4:429-441  
July-Dec. 1955.

(INFLUENZA, prev. & control

vacc. with autochthonous vaccine, behavior of serum  
antibodies, in child. & adults)

(ANTIGENS AND ANTIBODIES

influenza antibody form. after various methods of vacc.  
with autochthonous vaccine, in child. & adults)

TIMERMANIS, Yevgeniy Avgustovich; GODUNOV, A.A., red.

[Improving production administration in the Leningrad  
Economic Region] Sovershenstvovanie upravleniia proiz-  
vodstvom v Leningradskom sovnarkhoze. Leningrad, 1964.  
25 p. (MIRA 18:3)

S/058/61/000/012/022/023  
A058/A101

AUTHOR: Timerov, R. Kh.

TITLE: Paramagnetic resonance and relaxation in vanadyl salts

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1961, 210, abstract 12V405  
(V sb. "Paramagnitn. rezonans". Kazan', Kazansk. un-t, 1960, 16-20)

TEXT: It is shown that in  $VO^{2+}$  vanadyl salts the single d electron of the  $VO^{2+}$  ion undergoes the action of two fields: a strong, crystal electric field generated by the immediate environment, and a weaker axial field due to the electrons of the V - O bond (it is assumed in the calculations that the environment has cubic symmetry). It appears that the low-symmetry field in the case of the  $VO^{2+}$  ion is stronger than in  $Ti^{3+}$  salts, where it is generated by distortion of the regular-octahedron environment of the  $Ti^{3+}$  ion. The marked admixture of an axial electric-field component also explains the relatively long from the point of view of the Van Vleck mechanism, spin-lattice relaxation time ( $\sim 10^{-8}$  sec) in  $VO^{2+}$  salts, if we grant that splitting of the lower orbital triplet amounts to  $\sim 5 \cdot 10^3$  cm<sup>-1</sup>.

R. Timerov

[Abstracter's note: Complete translation]

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TIMEROV, R. Kh., KOZYREV, B. M., GRIF'YANOV, N. S., and USACHEVA, N. F. (Kazan)

"Paramagnetic resonance in the Solutions of Vanadyl Salts."

report submitted for the 10th AMPERE Colloquim, Leipzig, DDR, Sept. 1961

TIMEROV, R.Kh.

Effect of unresolved structures on the line width in electron  
paramagnetic resonance. Zhur. eksp. i teor. fiz. 40 no.4.1101-1105  
Ap '61. (MIHA 14:7)

1. Fiziko-tehnicheskii institut Kazanskogo filiala AN SSSR.  
(Paramagnetic resonance and relaxation)  
(Salts--Magnetic properties)

24.7900 (1055/1144,1482)

26708  
S/056/61/041/005/023/038  
B102/B138

AUTHORS: Timerov, R. Kh., Valiyev, K. A.

TITLE: Theory of nuclear resonance in paramagnetic media

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,  
no. 5(11), 1961, 1566-1575

TEXT: The influence of paramagnetic atoms on nuclear resonance results in the reduction of the relaxation times of the components of nuclear magnetization and in a shift  $\delta$  of the nuclear resonance frequency  $\omega_I$ .

Where there is low concentration of paramagnetic atoms their effect can be described by an additive law which has been verified theoretically as well as experimentally. In the case of high concentrations, which is that investigated in the present paper, exchange interaction between paramagnetic ions has to be taken into account. This determines the exchange of electron spin orientations reduces the effect of the paramagnetic atoms on relaxation times  $T_{||}$  and  $T_{\perp}$  of the nuclear magnetization components. The authors have developed a theory of the shape and width ( $T_{\perp}^{-1}$ ) of a

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Theory of nuclear resonance in...

nuclear resonance line which allows for the exchange interactions between paramagnetic atoms, which are in their turn modulated by the thermal motion in the system. The system contains  $N_I$  magnetic nuclei and  $N_S$  paramagnetic atoms per unit volume. The shape of the absorption line  $I(\omega)$  is represented as a Fourier transform of the autocorrelation function  $G(t)$  of the projection of the magnetic moment in the direction  $x$  of the variable magnetic field:  $I(\omega) = \frac{1}{2\pi} \int_{-\infty}^{+\infty} G(t) e^{-i\omega t} dt$ ;  $G(t) = \langle \hat{M}_x(t) \hat{M}_x(0) \rangle$ . In order

to find the parts of the Hamiltonian the first terms of the series  $G(t) = \sum_n G_n(t)$  are determined ( $G_1(t) = 0$ ):

$$G_0(t) = \frac{1}{6} N_I \gamma_I^2 I(I+1) [e^{i\omega_I t} + \text{K. c.}], \quad (7)$$

$$G_2(t) = -\frac{1}{6} N_I \gamma_I^2 I(I+1) \left[ e^{i\omega_I t} \sum_{\gamma} c_{\gamma}^2 \int_0^t d\tau (t-\tau) e^{i\omega_{\gamma} \tau} f_{\gamma}(\tau) + \text{K. c.} \right], \quad (8)$$

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with

$$\sigma_{\gamma}^2 = \hbar^{-2} \langle |\hat{M}_{+}^{(0)}| |\hat{\mathcal{H}}_{\gamma}^{\prime}(0)|^2 \rangle / \langle |\hat{M}_{+}^{(0)}|^2 \rangle, \quad \hat{M}_{\pm}^{(0)} = \gamma_{\gamma} \sum_k (\hat{I}_k^{\pm} + i\hat{I}_k^{\mp}), \quad (9)$$

$$f_{\gamma}(\tau) = \hat{N} \langle |\hat{M}_{+}^{(0)}| |\hat{\mathcal{H}}_{\gamma}^{\prime}(\tau)| |\hat{\mathcal{H}}_{-}^{\prime}(0)| |\hat{M}_{-}^{(0)}| \rangle, \quad (10)$$

$$\hat{\mathcal{H}}_{\gamma}^{\prime}(\tau) = \sum_{\gamma} e^{i\omega_{\gamma}\tau} \hat{\mathcal{H}}_{\gamma}^{\prime}(\tau) = \sum_{\gamma} e^{i\omega_{\gamma}\tau} \exp(i\tau\hat{\mathcal{H}}_2/\hbar) \hat{\mathcal{H}}_{\gamma}^{\prime} \exp(-i\tau\hat{\mathcal{H}}_2/\hbar). \quad (11)$$

$\sigma_{\gamma}^2$  is the contribution from  $\hat{\mathcal{H}}_{\gamma}^{\prime}$  to the second moment of the resonance line (in frequency units),  $f_{\gamma}(\tau)$  - the correlation function of the  $\hat{\mathcal{H}}_{\gamma}^{\prime}(\tau)$  values, which vary with time due to the effect of  $\hat{\mathcal{H}}_2$ , and  $\hat{N}$  is a formal operator:  $NA(t) = A(t)/A(0)$ ; the prime denotes the perturbation terms, +k.c. means: + complex conjugates. For  $G_0(t) + G_2(t)$

$$e^{i\omega_I t} \left\{ 1 - \sum_{\alpha=1,2} \sum_{\gamma, \beta} \sigma_{\gamma\beta, \alpha}^2 \int_0^t d\tau (t - \tau) e^{i(\gamma\omega_I + \beta\omega_S)\tau} \times \right. \\ \left. \times \exp \left[ -|\tau| \tau_{\alpha}^{-1} - |\tau| T_{\beta}^{-1} - \omega_{\gamma}^2 F(\tau) \right] \right\} + \text{k. c.}, \quad (21)$$

or, approximately,

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$$\exp \left\{ i\omega_I t - \sum_{a=1,2} \sum_{\gamma, \beta} \sigma_{\gamma\beta, a}^2 \int_0^t d\tau (t-\tau) e^{i(\gamma\omega_I + \beta\omega_S)\tau} \times \right. \\ \left. \times \exp [-|\tau| \tau_a^{-1} - |\tau| T_{\beta}^{-1} - \omega_I^2 F(\tau)] \right\} + \text{K. c.} \quad (22)$$

is found; In the expression (21) only a constant factor is omitted. Then the line shape is calculated for two limiting cases: fast (fluid) and slow (viscous liquid or solid) motion of the molecules of the system. In the first case,  $T_0^0 \gg \tau_a$ , from (22) or another formula the half-width of a Lorentz line with its center at  $\omega_I + \delta$  is found to be

$$\Delta\omega_{1/2} = S(S+1)\sigma_{IS}^2 \left\{ \frac{1}{3} K_{01} + \frac{1}{2} \frac{K_{11}^{-1}}{K_{11}^{-2} + \omega_S^2} + \frac{1}{4} \frac{K_{01}^{-1}}{K_{01}^{-2} + \omega_I^2} + \right. \\ \left. + \frac{1}{2} \frac{K_{11}^{-1}}{K_{11}^{-2} + (\omega_S + \omega_I)^2} + \frac{1}{12} \frac{K_{11}^{-1}}{K_{11}^{-2} + (\omega_I - \omega_S)^2} \right\} + \\ + \frac{1}{3} S(S+1) \langle A^2 \rangle \left\{ K_{02} + \frac{K_{12}^{-1}}{K_{12}^{-2} + (\omega_I - \omega_S)^2} \right\}, \quad (23)$$

The shift (in rad/sec) is determined by

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S/056/61/041/005/023/038

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$$-\delta = S(S+1)\sigma_{IS}^2 \left\{ \frac{1}{2} \frac{\omega_I}{K_{01}^{-2} + \omega_I^2} + \frac{1}{2} \frac{\omega_I + \omega_S}{K_{11}^2 + (\omega_I + \omega_S)^2} + \frac{1}{12} \frac{\omega_I - \omega_S}{K_{11}^{-2} + (\omega_I - \omega_S)^2} \right\} + \frac{1}{3} S(S+1) \langle A^2 \rangle \frac{\omega_I - \omega_S}{K_{12}^{-2} + (\omega_I - \omega_S)^2}; \quad (24)$$

$$K_{0,a}^{-1} = \tau_a^{-1} + T_1^{-1} + \tau_e \omega_e^2, \quad K_{1,a}^{-1} = \tau_a^{-1} + T_2^{-1} + \tau_e \omega_e^2. \quad (25)$$

The reciprocal relaxation times  $T_1^{-1}$  and  $T_2^{-1}$  are, for paramagnetic ions of the  $\text{Cu}^{2+}, \text{VO}^{2+}$  type, of the order of  $10^8 \text{ sec}^{-1}$ , for others much shorter still;  $\tau_1^{-1} \sim 10^{11} \text{ sec}^{-1}$ . Estimations show that very different situations may arise. For large  $\omega_e^2$  the half-width can be approximated by  $\Delta\omega_{1/2} = S(S+1) \left[ \frac{20}{12} \sigma_{IS}^2 + \frac{2}{3} \langle A^2 \rangle \right] / \tau_e \omega_e^2$  and for strong h-f fields by  $(\Delta\omega_{1/2})_{h-f} = \frac{71}{22} S(S+1) \sigma_{IS}^2 K_{\beta,1} + \frac{1}{3} S(S+1) \langle A^2 \rangle K_{\beta,2}$ . For slow thermal motion,  $T_1^{-1} \ll \tau_e$ , the nuclear absorption lines are, near their maximum, of Lorentzian shape, their half width is described by

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$$\Delta\omega_{\gamma\beta} = \sqrt{\frac{\pi}{2}} \frac{1}{\omega_e} \sum_{\gamma=0}^1 \sum_{\beta=-1}^1 \sigma_{\gamma\beta}^2 \operatorname{Re} L(z_{\gamma\beta}), \quad (28)$$

$$\omega_I + \delta = \omega_I - \sqrt{\frac{\pi}{2}} \frac{1}{\omega_e} \sum_{\gamma=0}^1 \sum_{\substack{\beta=-1 \\ |\gamma|+|\beta| \neq 0}}^1 \sigma_{\gamma\beta}^2 \operatorname{Im} L(z_{\gamma\beta}); \quad (29)$$

$$z_{\gamma\beta} = (\gamma\omega_I + \beta\omega_S - iT_{\beta}^{-1})/\omega_e \sqrt{2}, \quad (30)$$

$$L(z) = e^{-z^2} - i2W(z)/\sqrt{\pi}, \quad W(z) = e^{-z^2} \int_0^z e^{x^2} dx. \quad (31)$$

For ions of the  $\text{Mn}^{2+}$ ,  $\text{Cr}^{3+}$ ,  $\text{VO}^{2+}$  type (strong fields)

$$\Delta\omega_{\gamma\beta} = \sqrt{\frac{\pi}{2}} \frac{1}{\omega_e} \left[ \sigma_{00}^2 + \sigma_{10}^2 + \sum_{\gamma=0,1} \sum_{\beta=\pm 1} \sigma_{\gamma\beta}^2 \exp \left[ -\frac{(\gamma\omega_I + \beta\omega_S)^2}{2\omega_e^2} \right] \right], \quad (32)$$

holds, and the shift is given by

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$$-\delta = \sqrt{2}\omega_e^{-1} S(S+1) \left[ \frac{5}{12} \sigma_{IS}^2 - \frac{1}{3} \langle A^2 \rangle \right] e^{-u} \int_0^u e^{x^2} dx, \quad (34)$$

With (32) and (34) the exchange frequency  $\omega_e$  can be determined when  $\Delta\omega_{1/2}$  and  $\delta$  are measured. For weak fields but strong interaction

$$\Delta\omega_{1/2} = \sqrt{\frac{\pi}{2}} \frac{1}{\omega_e} S(S+1) \left\{ \left( \frac{7}{12} \sigma_{IS}^2 + \frac{1}{3} \langle A^2 \rangle \right) e^{u^2} \left( 1 - \frac{2}{\sqrt{\pi}} \int_0^u e^{-x^2} dx \right) + \right. \\ \left. + \left( \frac{13}{12} \sigma_{IS}^2 + \frac{1}{3} \langle A^2 \rangle \right) e^{u^2} \left[ 1 - \frac{2}{\sqrt{\pi}} \int_0^u e^{-x^2} dx \right] \right\}, \quad (35) \quad u = 1/\sqrt{2} T_1 \omega_e, \quad v = 1/\sqrt{2} T_2 \omega_e.$$

holds, and for very strong interaction ( $T_1^{-1}, T_2^{-1} \ll \omega_e$ ):

$$\Delta\omega_{1/2} = \sqrt{\frac{\pi}{2}} \frac{1}{\omega_e} S(S+1) \left[ \frac{5}{3} \sigma_{IS}^2 + \frac{2}{3} \langle A^2 \rangle \right].$$

There are 14 references: 5 Soviet and 9 non-Soviet. The four most recent references to English-language publications read as follows:  
N. Bloembergen. J. Chem. Phys. 27, 572, 1957; R. Kubo, K. Tomita. J. Phys. Soc. Japan, 2, 888, 1954; T. Moriya. Progr. Theor. Phys., 16, 23,

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Theory of nuclear resonance in...

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S/056/61/041/005/023/038  
B102/B138

1956; T. Moriya. Progr. Theor. Phys., 16, 641, 1956.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Physicotechnical Institute of the Kazan' Branch of the Academy of Sciences USSR). Kazanskiy pedagogicheskiy institut (Kazan' Pedagogical Institute)

SUBMITTED: May 22, 1961 (initially)  
October 15, 1961. (after revision)

Card 8/8

S/181/62/004/001/016/052  
B125/B104

AUTHORS: Garif'yanov, N. S., Fedotov, V. N., and Timerov, R. Kh.

TITLE: Measurement of spin-lattice relaxation times in undercooled  $Ti^{3+}$  solutions by the method of continuous saturation

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 96 - 98

TEXT: The longitudinal spin-lattice relaxation time  $T_1$  in undercooled glycerol solutions of  $TiCl_3 \cdot 6H_2O$  as a function of the concentration of  $Ti^{3+}$  ions has been measured at  $\nu = 270$  Mc/sec and  $77^\circ K$  by the method of continuous saturation.  $T_1$  was calculated from Bloch's formula  $Z = [1 + 0.25 \gamma^2 H_1^2 T_1 T_2]^{-1}$ , where  $Z$  is the saturation factor,  $\gamma$  is the gyromagnetic ratio,  $H_1$  is the h-f field amplitude, and  $T_2$  is the transverse relaxation time.  $H_1$  was also determined with standard samples of  $\alpha$ -di-phenyl picryl hydrazyl, and  $T_2$  was calculated from the experimental width of the absorption curve. The dependence of  $T_1$  on the  $Ti^{3+}$  concentration,

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Measurement of spin-lattice...

S/181/62/004/001/016/052  
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which can be seen from the measured values, is probably due to the change in symmetry of the intracrystalline electric field at the magnetic  $Ti^{3+}$  ion and to cross relaxation processes. The concentration dependence of  $T_1$  of the  $Ti^{3+}$  ions in undercooled solutions containing 4 and 2 moles/l of  $CoCl_2 \cdot 6H_2O$  was also studied. The shape of the e.p.r. lines is of the Lorentz type, and their width is virtually independent of the concentration. Saturation could not be achieved because of the considerable shortening of  $T_1$ . The slight dependence of  $\Delta H$  on the concentration of  $Ti^{3+}$  ions and the Lorentz shape of the absorption lines are due to the fact that the  $Ti^{3+}$  ions are in the local alternating magnetic field of rapidly relaxing magnetic  $Co^{2+}$  ions. The variation in the line width  $\Delta H$ , which can be estimated from  $\Delta H \sim M_z^2 \tau + \Delta H_1$ , and the spin-lattice relaxation times in undercooled solutions of  $TiCl_3 \cdot 6H_2O$  containing 4 and 2 moles/l of  $CoCl_2 \cdot 6H_2O$  are by no means due to the change in symmetry of the neighbor-

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Measurement of spin-lattice...

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hood of the magnetic  $Ti^{3+}$  ion.  $M_z' = (4/5)g_{Ti}^2 g_{Co}^2 \beta^4 S_{Co}(S_{Co}+1) \sum \langle r_{1j}^{-6} \rangle$  is the mean square deviation of the local field generated by  $Co^{2+}$  ions from  $H_0$ ,  $\tau$  is the spin-lattice relaxation time of  $Co^{2+}$  ions, and  $\Delta H_1$  is the contribution of dipole-dipole interactions between  $Ti^{3+}$  ions. The liquids containing  $Co^{2+}$  ions behave toward dipole-induced line broadening like true liquids. There are 2 tables and 6 references: 4 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: I. P. Goldsborough, M. Mandel a. G. E. Pake. Phys. Rev. Lett., 4, 13, 1960; I. H. Van Vleck. Phys. Rev., 57, 426, 1952, 1940.

ASSOCIATION: Kazanskiy filial AN SSSR (Kazan' Branch AS USSR)

SUBMITTED: July 11, 1961

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Card 3/3

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S/056/62/042/002/042/055

B108/B138

24.2200 (1055, 1144, 1158)

AUTHORS: Valiyev, K. A., Timerov, R. Kh.

TITLE: Theory of nuclear resonance in paramagnetic media. II. Spin-lattice relaxation

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 2, 1962, 597 - 599

TEXT: On the basis of a previous paper (ZhETF, 41, 1566, 1961) the authors calculated the longitudinal nuclear spin-lattice relaxation time  $T_1$ . Kubo and Tomita (Ref. 2, see below) have shown that  $T_1$  in linear approximation can be calculated from the formula

$$T_1^{-1} = \frac{1}{2} \sum_{\gamma \neq 0} \sigma_Y^{(z)2} \int_{-\infty}^{\infty} j_Y(\tau) \exp(i\gamma\omega_1\tau) d\tau; \quad (1)$$

$$\sigma_Y^{(z)2} = \hbar^{-2} \langle |\hat{M}_z, \hat{\mathcal{H}}_Y(0)|^2 \rangle / \langle \hat{M}_z^2 \rangle, \quad (2)$$

$$j_Y(\tau) = \langle [\hat{M}_z, \hat{\mathcal{H}}_Y(\tau)] [\hat{\mathcal{H}}_Y(0), \hat{M}_z] \rangle / \langle |\hat{M}_z, \hat{\mathcal{H}}_Y(0)|^2 \rangle. \quad (3)$$

$\sigma_Y^{(z)2}$  has the meaning of the mean square z-component of the internal

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field (frequency units) produced in the nucleus by the non-secular part of the perturbation  $\hat{H}'_Y$ ,  $\gamma \neq 0$ . This perturbation changes with time owing to the precession, relaxation, and exchange motions in the electron spin system and to the thermal motion of the particles in the medium. The energy transfer caused by the variation of the perturbation is characterized by  $T_H$ . Considering all these factors, the authors found that

$T_H^{-1} = 2(\Delta\omega_{1/2})_{NS}$  (7), where  $(\Delta\omega_{1/2})_{NS}$  is that contribution to the resonance line width which goes back to the non-secular part of the perturbation  $\hat{H}'_Y$ ,  $\gamma \neq 0$ . Formula (7) is evaluated for the two limiting cases of fast and slow thermal motion in the medium. Qualitatively,  $T_H^{-1}$  depends on the same factors as  $T_L^{-1}$ . The numerical difference between  $T_H$  and  $T_L$  is due not only to their different dependences on the Larmor frequencies  $\omega_S, \omega_I$  but also to the contact interaction between electronic and atomic spins. Therefore, the contact interaction between paramagnetic particles and the nuclear spins can be determined from the ratio  $T_H/T_L$  (Ref. 3, see below). There are 1 table and 3 references: 1 Soviet and 2 non-Soviet.

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Theory of nuclear resonance in ...

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B108/B138

The 2 references to English-language publications read as follows: Ref 2:  
R. Kubo, K. Tomita. J. Phys. Soc., Japan, 9, 888, 1954; Ref 3:  
N. Bloembergen. J. Chem. Phys., 27, 572, 1957

ASSOCIATION: Kazanskiy pedagogicheskiy institut (Kazan' Pedagogical  
Institute)

SUBMITTED: September 8, 1961

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Card 3/3

GARIF'YANOV, N.S.; KOZYREV, B.M.; TIMEROV, R.Kh.; USACHEV, N.F.

Electron paramagnetic resonance in concentrated aqueous solutions  
of  $\text{VO}_2^-$ . Zhur.eksp.i teor.fiz. 41 no.4:1076-1078 0 '61.  
(MIRA 14:10)

1. Fiziko-tekhnicheskii institut Kazanskogo filiala Akademii nauk  
SSSR.

(Paramagnetic resonance and relaxation) (Vanadium oxides)

TIMEROV, R.Kh.; VALIYEV, K.A.

Theory of nuclear resonance in paramagnetic media. Zhur. eksp.  
i teor. fiz. 41 no.5:1566-1575 N '61. (MIRA 14:12)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii  
nauk SSSR i Kazanskiy pedagogicheskiy institut.  
(Nuclear magnetic resonance and relaxation)

GARIF'YANOV, N.S.; FEDOTOV, V.N.; TIMEROV, R.Kh.

Measuring the spin-lattice relaxation time in supercooled  
 $Ti^{3+}$  solutions by the progressive saturation method. Fiz.  
tver. tela 4 no.1:96-98 Ja '62. (MIRA 15:2)

1. Kazanskiy filial AN SSSR.  
(Paramagnetic resonance and relaxation)  
(Titanium)

S/181/62/004/011/047/049  
B108/B186

AUTHORS: Garif'yanov, N. S., Timerov, R. Kh., and Usacheva, N. F.  
TITLE: e.p.r. in undercooled solutions containing  $Mn^{2+}$  and  $Gd^{3+}$  ions  
PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 1962, 3344-3345

TEXT: The authors studied the e.p.r. spectra of  $Mn^{2+}$  and  $Gd^{3+}$  ions in glasses to gain information on the local electrical fields around the magnetic ions. The measurements were made at 77°K on the frequencies 9320 and 260 Mcps. The samples were boron glass and solutions of the above ions in glycerol, ethanol, methanol, and butanol. From the observed ratio of the intensities of the transitions  $|M, m\rangle \leftrightarrow |-M, m+1\rangle$  and  $|M, m\rangle \leftrightarrow |-M, m\rangle$  the authors calculated the constant D of spin level splitting of  $Mn^{2+}$  in an axial field. In methanol, D was 140. The other solvents showed similar values. The calculations were based on a formula established by B. Bleaney and R. S. Rubins (Proc. Phys. Soc., 77, 103, 1961). Under the assumption that the Hamiltonian

$$\mathcal{H} = g\beta(H_x S_x + H_y S_y + H_z S_z) + B_2^0 P_2^0 + B_2^2 P_2^2 + B_4^0 P_4^0 + B_4^2 P_4^2 + B_4^4 P_4^4 + B_6^0 P_6^0 + B_6^2 P_6^2 + B_6^4 P_6^4 + B_6^6 P_6^6 \text{ for the ion}$$

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epr in undercooled solutions ...

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in the  $^8S_{7/2}$ -state, in an axisymmetric electrical field, is applicable when the external magnetic field is perpendicular to the electrical field, its solution gives:  $b_2^0 = 3B_2^0 = 0.068 \text{ cm}^{-1}$  and  $b_4^0 = 60B_4^0 = 0.004 \text{ cm}^{-1}$  for methanol. In glycerol, only the transition

$\frac{1}{2} \leftrightarrow -\frac{1}{2}$  with the splitting factor  $g = 1.99$  and  $\delta H = 100 \text{ oe}$  was observed, the frequency used being 9320 Mcps. On 260 Mcps, all the glasses containing  $\text{Gd}^{3+}$  showed only the transition  $+\frac{1}{2} \leftrightarrow -\frac{1}{2}$  with  $g = 4.7$  and the line width  $\delta H = 70 \text{ oe}$ . There are 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR  
(Physicotechnical Institute of the Kazan' Branch AS USSR)

SUBMITTED: July 16, 1962

Card 2/2

VALIYEV, K.A.; TIMEROV, R.Kh.

Theory of nuclear resonance in paramagnetic media. Part 2: Spin-lattice relaxation [with summary in English]. Zhur. eksp. i teor. fiz. 42 no.2:597-599 F'62. (MIRA 15:2)

1. Kazanskiy pedagogicheskiy institut.  
(Paramagnetic resonance and relaxation)

S/056/62/042/005/001/050  
B125/B108

AUTHORS: Garif'yanov, N. S., Kozyrev, B. M., Timerov, R. Kh.,  
Usacheva, N. F.

TITLE: Electron paramagnetic resonance in dilute vanadyl chloride  
solutions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42,  
no. 5, 1962, 1145 - 1148

TEXT: The authors used a PD-1301 (RE-1301) type radio-spectrometer operating on a frequency of 9320 Mcps to study the dependence of the hyperfine line width  $\delta H$  of the electron paramagnetic resonance spectrum of dilute  $\text{VOCl}_2$  solutions on temperature and viscosity of the medium. It was found that less electrical conductivity produced more symmetrical resonance lines. The following results are valid for symmetrical peaks and  $\text{VOCl}_2$  aqueous solutions of 0.02 mole/l. The dependence of the width of the peaks (see reference) on the nuclear spin projection  $m_I$  is given by

$$\delta H = a_1 + a_2 m_I + a_3 m_I^2. \text{ The coefficients } a_1, a_2, a_3 \text{ determine the width}$$

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B125/B108

Electron paramagnetic resonance in...

of each peak of the hyperfine structure and are related to the anisotropic parameters  $\Delta g$  and  $b$  of the  $VO^{2+}$  ion spin Hamiltonian. The dependence of  $\delta H$  on  $m_I$  becomes less sharp when temperature is increased and consequently viscosity is reduced. When  $\omega_0^2 \tau_c^2 \ll 1$ , the ratio  $a_2/a_3$  is independent of temperature and viscosity.  $\tau_c$  is the characteristic time of the correlation function of the Brownian motion.  $a_1$  depends on temperature to a lesser extent than  $a_2$  and  $a_3$ . This indicates that the relaxation mechanism (differing from the McConnell-mechanism) is predominant in  $a_1$  and consequently also in that part of the half-width of the hyperfine structure components which is independent of the nuclear spin orientation. The most probable mechanism is that suggested by S. A. Al'tshuler and K. A. Valiyev (ZhETF, 35, 947, 1958). A double hyperfine structure is observed in some liquid solutions of  $VOCl_2$ , if  $(\Delta g \beta H / \hbar) \tau_c \gg 1$  and  $b \tau_c \gg 1$ . There are 2 figures and 1 table. The most important English-language reference is: R. N. Rogers, G. E. Pake, J. Chem. Phys., 33, 1107, 1960.

Card 2/3

Electron paramagnetic resonance in...

S/056/62/042/005/001/050  
B125/B108

ASSOCIATION: Kazanskiy filial Akademii nauk SSSR (Kazan' Branch of the  
Academy of Sciences USSR)

SUBMITTED: November 9, 1961

Card 3/3

TIMEROV, R.Kh.

Theory of electron paramagnetic resonance in solutions.  
Dokl. AN SSSR 142 no.4:870-873 F '62. (MIRA 15:2)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR.  
Predstavleno akademikom B.A.Arbutovym.  
(Paramagnetic resonance and relaxation)

S/C56/63/044/002/022/065  
B102/B186:

AUTHORS: Valiyev, K. A., Timerov, R. Kh., Yul'met'yev, R. M.

TITLE: The influence of the molecular shape on the magnetic relaxation rate in liquids. II

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 2, 1963, 522-529

TEXT: The authors continue previous investigations (ZhETF, 42, 503, 1962; Optika i spektroskopiya, 13, 505, 1962) on the Brownian rotation of molecules in a fluid. The probabilities of relaxative transitions between magnetic sublevels of nonspherical fluid particles have been calculated. These results are now used to determine the magnetic-resonance line widths and longitudinal relaxation times for such particles. The Kubo-Tomita method (J. Phys. Soc. 9, 888, 1954) is applied to obtain a relation between the relaxation times  $T_{1,2}$  and the main values  $D_{1,2,3}$  of the tensor  $D_{ii}$  or rotational diffusion that characterizes the Brownian rotation of the molecules. The calculations are made for quadrupole and dipole spin-Card 1/4

The influence of the ...

S/056/63/044/002/022/065  
B102/B186

spin interactions, and also for anisotropic  $g$ -factors, hyperfine and Stark interaction constants. The magnetic-resonance line half-width

$$\Delta\omega_{1/2} = 1/T_2 = \sum_{\beta} \sigma_{1\beta}^2 \tau'_{1\beta} \quad \text{and} \quad 1/T = \sum_{\beta} \sigma_{0\beta}^2 \tau'_{0\beta}. \quad \text{With}$$

$$f_{\alpha\beta}(\tau) = \langle \varphi_{-\beta}(\tau) \varphi_{\beta}(0) \rangle / \langle |\varphi_{\beta}|^2 \rangle = f(\tau) =$$

$$= \frac{1}{8\pi} \int \varphi_{\beta}(\alpha^0, \beta^0, \gamma^0) \varphi_{-\beta}(\alpha, \beta, \gamma) G(\alpha, \beta, \gamma; \tau | \alpha^0, \beta^0, \gamma^0; 0) \times$$

$$\times \sin \alpha^0 d\alpha^0 d\beta^0 d\gamma^0 \sin \alpha d\alpha d\beta d\gamma / \frac{2}{15} g_{\beta}^2. \quad (15)$$

$$\tau'_{\alpha\beta} = \tau'_{\beta} = \sum_l \Omega_l \rho(D_{kl}, \beta) = \sum_l \Omega_l D_{kl} (D_{kl}^2 + \beta^2 \omega_z^2)^{-1}. \quad (17),$$

$$\frac{1}{T_1} = \frac{1}{25} \left( \frac{eQg_{\beta}}{\hbar} \right)^2 \frac{l(l+1) - 3/4}{l^2(2l-1)^2} \sum_l \Omega_l [ \rho(D_{kl}, 0) + \frac{5}{3} \rho(D_{kl}, 1) + \frac{2}{3} \rho(D_{kl}, 2) ] \quad (21)$$

$$\frac{1}{T_1} = \frac{1}{25} \left( \frac{eQg_{\beta}}{\hbar} \right)^2 \frac{l(l+1) - 3/4}{l^2(2l-1)^2} \sum_l \Omega_l \left[ \frac{2}{3} \rho(D_{kl}, 1) + \frac{8}{3} \rho(D_{kl}, 2) \right]. \quad (22)$$

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S/C56/63/044/002/022/065  
B102/B166

The influence of the ...

is obtained. For magnetic relaxation caused by intermolecular spin-spin interaction

$$\frac{1}{T_2(ij)} = \sum_{l=-2}^2 \Omega_l(ij) \sum_{p=-2}^2 \sigma_{ap}^2(ij) D_{kl} (D_{kl}^2 + \beta^2 \omega_l^2)^{-1}, \quad (36)$$

$$\sigma_{12}^2 = \sigma_{1-1}^2 = \frac{2}{3} \sigma_{11}^2 = \frac{2}{3} \sigma_{10}^2 = \frac{r}{2} \sigma_{0\pm 2}^2 = 2 \sigma_{0\pm 1}^2 = \frac{2}{3} \sigma^2, \quad (37)$$

$$\sigma_{1-2}^2 = \sigma_{00}^2 = 0; \quad \sigma^2 = \frac{3}{6} I(I+1) \gamma^4 \hbar^2 r_{ij}^{-6},$$

is obtained in the case of equivalent nuclei. In the case of electron resonance in liquids, line width and relaxation time are given by

$$\Delta \omega_{l,m} = \frac{2}{15} \hbar^{-2} \sum_{l=-2}^2 \left\{ \left[ \frac{2}{3} g_p^2 + \frac{1}{2} g_d^2 f_m \right] \Omega_l^{(0,m)} \rho(D_{kl}, \omega_{0,m}) + \right. \quad (44)$$

$$\left. + \left[ \frac{1}{2} g_p^2 + \frac{7}{12} g_d^2 f_m \right] \Omega_l^{(-1,m)} \rho(D_{kl}, \omega_{-1,m}) + \frac{a}{6} (S(S+1) - \frac{3}{4}) g_d^2 \Omega_l^d \times \right.$$

Card 3/4

The influence of the ...

S/056/63/044/002/022/065  
B102/B186.

$$\begin{aligned} & \times [\rho(D_{kl}, \omega_{0,0}) + \frac{5}{3} \rho(D_{kl}, \omega_{10}) + \frac{2}{3} \rho(D_{kl}, \omega_{2,0})], \\ T_{1m}^{-1} = & \frac{4}{15} h^{-2} \sum_{l=-2}^2 \left\{ \left[ \frac{1}{2} g_p^2 + \frac{7}{12} g_{afm}^2 \right] \Omega_l^{-1, -m} \rho(D_{kl}, \omega_{-1, m}) + \right. \\ & \left. + \frac{4}{6} (S(S+1) - \frac{3}{4}) \Omega_l^d g_d^2 [\rho(D_{kl}, \omega_{1,0}) + 4\rho(D_{kl}, \omega_{2,0})] \right\}. \end{aligned} \quad (45).$$

It may be seen that for  $S > 1/2$  the main contribution to the line width is due to Stark interaction of the particle spins. Apart from the broadening caused by the Brownian rotation, there is also a broadening due to the interaction between spin and inner oscillations of the molecule. The latter is equal for all hyperfine components, as is the case for the Stark broadening.

ASSOCIATION: Kazanskiy pedagogicheskiy institut (Kazan' Pedagogical Institute), Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Physicotechnical Institute of the Kazan' Branch of the Academy of Sciences USSR)

SUBMITTED: June 11, 1962  
Card 4/4

I 10831-63  
 ACCESSION NR: AP3000754  
 EPF(c)/EWP(j)/EWT(l)/EWT(m)/BDS--AFFTC/ASD--Pr-l/Pc-l--RM/WW/JW/  
 S/0020/63/150/003/0588/0591  
 JFW  
 13  
 76

AUTHOR: Il'yasov, A. V.; Garif'yanov, N. S.; Timerov, R. Kh.

TITLE: The nature of spin-lattice interaction in magnetically weak free radicals

SOURCE: AN SSSR. Doklady, v. 150, no. 3, 1963, 588-591

TOPIC TAGS: electron paramagnetic resonance, time of spin, lattice relaxation, Alpha, Alpha-diphenyl-Beta-picryl-hydrazyl

ABSTRACT: The electron paramagnetic resonance (e.p.r.) was studied in solutions of free radicals of Alpha, Alpha-diphenyl-Beta-picryl-hydrazyl and 2,2,6,6-tetramethylpentamethylene nitric oxide in methanol, ethanol, benzene, toluene and mixtures of these in glycerin and in water. A study of solid (supercooled) solutions (10 sup -2 to 10 sup -3 mol/l) indicated the time of spin lattice relaxation was independent of concentration and nature of solvent. The mechanism proposed by I. V. Aleksandrov and G. M. Zhidomirov (Zh. E. T. F., 41, 127, 1961) provides for relaxation time in solid solutions of free radicals. Experiments run at elevated temperatures indicated that collisions (brownian movement) in polar solvents (solvated radicals) were less effective on relaxation than in non-polar solvents (non-solvated radicals). Intensification of signal is not proportional to increase

Card 1/2

L 10831-63

ACCESSION NR: AP3000754

in concentration of radicals, but much greater. This supports proposal by McConnel (J. chem. phys. 25, 709, 1956) that isolated radicals have too long a relaxation time and are therefore saturated by small forces of the high frequency field and do not contribute to the e.p.r. signal. In these dilute solutions the mechanism is considerably dependent on the nature of the solvent. "The authors express thanks to B. M. Kozyrev for discussion of the results." Orig. art. has: 3 equations, 1 table, 1 figure. 3

ASSOCIATION: Fiziko-tehnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Physical-Technical Institute of the Kazan Branch of the Academy of Sciences SSSR). Institut organicheskoy khimii Akademii nauk SSSR Kazan (Institute of Organic Chemistry, Academy of Sciences SSSR)

SUBMITTED: 06Feb63

DATE ACQD: 21Jun63

ENCL: 00

SUB CODE: 00

NO REF SOV: 006

OTHER: 004

ch/W  
Card 2/2

TIMEROV, R.Kh.; YABLOKOV, Yu.V.; ABLOV, A.V., akademik

Electron paramagnetic resonance method used in studying copper  
(11) bis-dimethylglyoximate. Dokl. AN SSSR 152 no.1:160-163  
S '63. (MIRA 16:9)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i  
Institut khimii AN Moldavskoy SSR. 2. AN Moldavskoy SSR (for  
Ablov).

(Copper compounds) (Glyoxime)  
(Electron paramagnetic resonance and relaxation)

CA 23

Fillers and filling of paper. Technological part. N. Perekul'skii and N. Timoshcheva. *Vsesoyuznii Nauch.-Issledovatel. Inst. Bumazhnoi-Tsellyuloznoi Prom. Materialov (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.)* 1933, No. 1, 81-128. The various types of fillers and the existing theories and practice of filling paper are discussed. **Economical part.** M. Ya. Marshak. *Ibid.* 128-42. The economic problem of substituting  $\text{CaCO}_3$  and  $\text{CaSO}_4$  for the inadequate domestic supply of talc in paper filling is discussed.

AS 51.51.4 METALLURGICAL LITERATURE CLASSIFICATION

23

Paper for telegraphic tape. I. G. Kulev and N. L. Timesheva. *Tsentral. Nauch.-Issledovatel. Inst. Bumazh. Prom. Materialy* 1940, No. 29-30, 230-47. — Highly satisfactory telegraph tape was obtained from an equal mixt. of bleached sulfite pulp, contg. 80-85%  $\alpha$ -cellulose and 6% pentosans, and unbleached sulfite pulp of 75% hardness, contg. 7% pentosans. The mixt. was beaten to 65% freeness and impregnated with a mixt. of 20% starch, 15% liquid glass and 1% animal glue and then treated with 6-12%  $\text{Al}_2(\text{SO}_4)_3$ . The procedure is described in detail and the results of testing are given. Chas. Blanc

ASAC SLA METALLURGICAL LITERATURE CLASSIFICATION

25

CA

**Paper for diaphragms of electrodynamic loud speakers.**  
 I. G. Kulev, N. L. Timesheva and D. M. Flyate. *Tekhn. Nauch.-Issledovatel. Inst. Bumashkol Prom., Materialy* No. 31, 137-90 (1940).—The acoustics of cast diaphragms contg. 50% of sulfite bleached mercerized pulp and phragms contg. 50% of sulfite unbleached pulp were equal to those of the American diaphragms contg. esparto fibers. The fibrous material is beaten under conditions excluding the formation of mucilage. Unbleached pulp is beaten to 27° Schopper-Rigler and the mercerized pulp to about 17°. About 1% of rosin is sufficient for sizing the mass. For glued diaphragms the most suitable paper from technological and acoustical viewpoints is that contg. 50% bleached sulfite and 50% mercerized bleached pulp. Diaphragm paper contg. cotton fibers did not meet the specifications. An exptl. batch of diaphragm paper was made on a large scale from bleached sulfite pulp with the following consts.:  $\alpha$ -cellulose (Jentgen) 86.58, lignin (Schwalbe-Becker) 0.78, pentosans (Tollens) 5.07, Cu no. (Bertrand) 1.00%. After mercerization the same pulp showed the following values for the above consts.: 94.84, 0.26, 1.72, and 0.88%. Before addn. to the mixt. the mercerized product was washed for 8-10 hrs. with  $H_2O$  until neutral to phenolphthalein. The pulp was beaten to 13-20° Schopper-Rigler. Sizing was carried out with 1% rosin and 2.5%  $Al_2(SO_4)_3$  and dyeing with 5% "direct black" and 1% "direct blue" on the wt. of the dry fibers. Tests showed it equal to the R. C. A. diaphragm RL-23-C. B. Z. K.

ASH-ILA METALLURGICAL LITERATURE CLASSIFICATION



COUNTRY : USSR  
 CATALOGUE : Pharmacology, Toxicology. Local Anesthetics  
 ASS. JOUR. : RZBiol., No. 12 1958, No. 52693  
 AUTHOR : Andreyeva, A.G., Komarov, I.I., Timoskov, A.G.  
 INST. : Leningrad Sanitation-Hygiene Medical Institute  
 TITLE : The Problem of the Treatment of Ulcer Patients  
 with Novocaine.  
 ORIG. PUB. : Tr. Leningr. San.-Gigiyen. Med. In-ta, 1957,  
 Vol. 51, 87-97  
 ABSTRACT : Visceral anesthesia by the method of A.I. Bogoroditsky  
 was carried out in 915 patients. In 80.6% of the  
 patients, pain disappeared (within 1-2 days), in  
 10.6% it diminished. There was simultaneous im-  
 provement in appetite and sleep, a reduction or  
 disappearance of dyspeptic manifestations. Control  
 X-ray studies (over a 2-year period) demonstrated  
 in 36% of the patients an absence of the niche  
 with good general well-being and freedom from  
 symptoms. -- A.Yu. Lyubko-Segrin

CARD: 1/1

TRUSOV, I. S.

"Conditioned Reflex Gastric and Hepato-Pancreatic-Duodenal Secretion in Humans Under Normal and Pathological Conditions. (Clinical-Physiological Observations)." Cand Med Sci, Leningrad Sanitary-Hygiene Medical Inst, Leningrad, 1954. (RM Biol, No 4, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

USSR/Human and Animal Physiology - The Nervous System.

T

Abs Jour : Ref Zhur Biol., No 3, 1959, 13259

Author : Timeskov, I.S.

Inst : Leningrad Sanitation-Hygienic Medical Institute

Title : Conditioned Reflex Secretory Activity of the Principal Digestive Glands in Normal Individuals and Patients with Ulcerative Conditions and Chronic Gastritis

Orig Pub : Tr. Leningr. san.-gigiyen. med. in-ta, 1957, 34, 9-58

Abstract : In patients with ulcerative conditions and chronic gastritis the excretion of gastric and hepatic-pancreatic-duodenal juices is higher with fasting than in normal individuals. The conditioned secretory reflex (on presentation of food) is expressed considerably weaker in patients than in healthy subjects:

Card 1/2

- 119 -

USSR/Human and Animal Physiology - The Nervous System.

T

Abs Jour ; Ref Zour Biol., No 3, 1959, 13259

the increase of the gastric secretion in healthy individuals is 90.5%, with ulcers of the stomach - 15.7%, with duodenal ulcers - 40.6%, with hyperacidic gastritis - 45.3%. The acidity of gastric juices is changed little in patients after conditioned stimulation; the concentration of chloride and amylase is lower than in normal people and is negligibly increased after food presentation; the bicarbonate content, on the other hand, is higher. A conditioned reflex diminution of the gastric secretion and an increase of the hepatic-pancreatic-pancreatic-duodenal secretion was observed in patients with achlorhydria.

-- I.M. Sheyman

Card 2/2

TIMESKOV, Ivan Stepanovich

[Work of the nurse in the therapeutic department] Rabota  
meditsinskoi sestry v terapevticheskom otdelenii. Leningrad,  
Medgiz, 1959. 130 p. (MIRA 13:3)  
(NURSES AND NURSING)

BOMASH, Ya.F.; KANAYEV, N.N.; LIKHNITSKAYA, I.I.; PARILOVA, V.A.; TIMESKOV,  
I.S.; TRET'YAKOV, A.F.; FRIDMAN, S.Ya. [deceased]; RYNKEVICH, V.S.

[Methodological fundamentals for using functional studies in  
practical expertise] Metodicheskie osnovy ispol'zovaniia  
funktsional'nykh issledovaniy v ekspertnoi praktike. Leningrad,  
Meditsina, 1965. 228 p. (MIRA 18:12)

GRINSHTEYN, N.V.; DAVYDENKO, Yu.A.; SERGEYEV, O.P.; TIMESKOV, V.A.

Position of Bakal siderites in the enclosing rocks. Izv. AN SSSR.  
Ser. geol. 25 no.7:95-98 J1 '60. (MIRA 13:10)  
(Bakal region--Siderite)

TIMESKOV, V. A., Cand. Geol-Mineral.Sci. (diss) "Mineralogical  
Description of Carbonate Ores and Englosed Carbonate Rocks of  
Bakal'skiy Iron Ore Deposit," (Southern Urals)," Kazan'-Saratov,  
1961, 21 pp (Saratov State Univ.) 210 copies (KL Supp 12-61, 259-  
260).



TIMESKOV, V.A.

Some metamorphic phenomena occurring in Bakal diabases. Uch.zap.Kaz.  
un. 120 no.4:67-78 '60. (MIRA 14:6)  
(Bakal region -Diabase)

*TIMESKOVA G.V.*  
EXCERPTA MEDICA Sec 10 Vol 12/4 Obstetrics Apr 59  
521. VITAMIN B<sub>2</sub> REPLETION OF THE BODY IN NORMAL AND PATHOLOGICAL PREGNANCY (Russian text) - *Timeskova G. V.* - AKUSH. I  
GINEK. 1958, 4 (26-31) Graphs 1

The author examined the daily excretion of riboflavin with the urine of 696 pregnant women. Riboflavin deficiency was observed in the majority of these women: in toxemia of pregnancy riboflavin deficiency is more pronounced than in normal pregnancy. With the increase of the term of pregnancy riboflavin deficiency is more severe in normal and in pathological pregnancy, thus indicating a higher demand of riboflavin in pregnancy. Clinical studies, undertaken on 83 pregnant women and 650 puerperae (the first seven days after labour) revealed signs of riboflavin deficiency in 37 pregnant women and in 209 puerperae. The average daily excretion of riboflavin in these women was sharply decreased (it amounted to 6% of normal). Women with clinical manifestations of riboflavin deficiency more often had premature labour and primary weakness of labour activity. (X, 2\*)

EXCERPTA MEDICA Sec 2 Vol 12/9 Physiology Sept 59

4027. VIT. B<sub>2</sub> REPLETION OF THE BODY IN NORMAL AND PATHOLOGICAL PREGNANCY (Russian text) - Timeskova G. V. - AKUSH.I GINEK. 1958, 4 (26-31) Graphs 1

Riboflavin deficiency was observed in the majority of pregnant women; in tox-  
aemia of pregnancy riboflavin deficiency is more pronounced than in normal pre-  
gnancy. With the increase of the term of pregnancy riboflavin deficiency is more  
severe in normal and in pathological pregnancy, thus indicating a higher demand  
of riboflavin in pregnancy. Clinical studies, undertaken on 83 pregnant women and  
650 puerperae (the first seven days after labour) revealed signs of riboflavin de-  
ficiency in 37 pregnant women and in 209 puerperae. The average daily excretion  
of riboflavin in these women was sharply decreased (it amounted to 6% of normal).  
Women with clinical manifestations of riboflavin deficiency more often had pre-  
mature labour and primary weakness of labour activity. (X, 2)

TIMESKOVA, G.V., kand.med.nauk

Vitamin B2 saturation of the organism in normal and pathological pregnancy [with summary in English]. Akush. i gin. 34 no.4:26-31 (MIRA 11:9)  
Jl-Ag '58

1. Iz 2-y akushersko-ginekologicheskoy kliniki (nach. - prof. V.G. Butomo) Voenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.  
(VITAMIN B2, in urine  
in pregn. & pregn. toxemias (Rus))  
(PREGNANCY, urine in  
vitamin B2 (Rus))  
(PREGNANCY, TOXEMIAS, urine in  
same (Rus))

CZECHOSLOVAKIA / Human and Animal Physiology. Heart.

T

Abs Jour : Ref Zhur - Biol., No 15, 1958, No. 70131

Author : Vatovec, S.; Timot, D.

Inst : Hrvatski Natural Science Society

Title : The Causes of the Influence of the Serum of Vertebrates  
on Cardiac Function in Daphnia pulex

Orig Pub : Glasnik biol. sok. Hrvatsko prirodosl. drustvo, 1953  
(1955), Ser. 2B, Vol 7, 367-368

Abstract : It is known that the serum (S) of vertebrates influences the heart rate (HR) in Daphnia; upon dilution of S with water, this effect is weakened. In the authors' experiments, isotonic solutions of glucose and sucrose and S dialyzed against water showed no influence on the HR. S ash added to water, and also Ringor's solution, had the same influence on the HR as did S. A solution of NaCl increased the HR and led to cardiac arrest in diastole.

Card 1/2

CZECHOSLOVAKIA / Human and Animal Physiology. Heart.

T

Abs Jour : Ref Zhur - Biol., No 15, 1958, No. 70131

A KCl solution stopped the heart in systole.  $\text{CaCl}_2$  solution slowed contractions and stopped the heart in diastole.  
-- V. M. Morozhinakiy

Card 2/2

SOV/84-58-7-42/46

AUTHORS: Shabarkov, S., Chief Pilot of Bulgarian Airlines, and  
Timev, A., Flight Commander

TITLE: From the Experience of Soviet Friends (Po opytu sovet-  
skikh družey)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 7, p 39 (USSR)

ABSTRACT: The author discusses the short period of development  
of Bulgarian air services and pays tribute to the assistance  
of the Soviets in starting and building up the establishment.  
Further economy and safety of flights are briefly dealt with  
and he points out that the administration is aware of its debt  
to the USSR.

Card 1/1

SHABARKOV, S.; TIMEV, A., komandir transportnogo zvena.

Using the experience of Soviet friends. Grazhd. av. 15 no. 7:39  
J1 '58. (MIRA 11:7)

1. Glavnyy pilot vozdushnogo predpriyatiya Bolgarii(TABSO) (for  
Shabarkov). (Bulgaria--Aeronautics, Commercial)



*Timeva L.*  
Bulgaria /Chemical Technology. Chemical Products  
and Their Application

1-21

Fermentation industry

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32914

Author : Timeva L., Raduchev St.

Title : Technology of South-Bulgarian Karabunar Red  
Table Wine

Orig Pub: Lozarstvo i vinarstvo, 1956, 5, No 4, 215-220

Abstract: On the basis of the local technology utilized  
in the area of the village of Karabunar, a  
technology is proposed for the production of  
red table wine from the Pamid variety of grapes  
with addition of 5-10% of Mavrud variety. The  
grapes are passed through a crushing mill with  
the runners removed. Fermentation is conducted

Card 1/2

Bulgaria /Chemical Technology. Chemical Products  
and Their Application

I-31

Fermentation Industry

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32914

with immersed pulp. Separation of the must from  
the pulp is delayed for 21 days after fermenta-  
tion. In the case when the sugar content is low  
it is recommended to utilize the conventional  
technology.

Card 2/2

TIMEN, YAKOV YEVSKEYEVICH

N/5  
856.03  
.T5

Epidemiologicheskoye znachenie laboratornykh methodov diagnostiki  
bryushnogo tifa, paratifov i bakterionositel'stva Epidemiological  
significance of laboratory methods of diagnostics of typhoid fever,  
paratyphoid and bacteria carriers  
Moskva, Medgiz, 1958.

118p. tables

At head of title: Biblioteka Sanitarnogo Vrachy i Epidemiologa.  
"Literatura" p. 86-91

KONOVALOVA, N.G.; NAUMOVA, Ye.K.; RZHEVSKAYA, G.F.; TIMEYEVA, S.M.

Bactericidal effect of organophosphorus preparations and antibiotics on staphylococci of the genitals. Nauch. trudy Kaz. gos. med. inst. 14:207-208 '64. (MIRA 18:9)

1. Kafedra mikrobiologii (zav. - dotsent Z.Kh.Karimova)  
i kafedra farmakologii (zav. - dotsent T.V.Raspopova)  
Kazanskogo meditsinskogo instituta.

COUNTRY : Romania  
CATEGORY : Forestry. Forest Management. X  
ABST. JOUR. : RZhRiol., No. 23 1958, No. 104535  
AUTHOR : Timciuc, Mihail  
INSTR. : --  
TITLE : Use of the Magnetophone in Forest Management (Rumanian  
People's Republic)  
ORIG. PUB. : Rev. padurilor, 1956, 71, No. 5, 332  
ABSTRACT : No abstract.

Card: 1/1

TIMIFEYEV, V. M.

PA 19T100

USSR/Radio Transmitters  
Amplifiers, Radio frequency

Nov 1946

"Experiments in the Use of an Inverse Feedback  
System in the Final Amplifier of a High Power  
Short Wave Transmitter," V. M. Timifeyev, Z. V.  
Topuriya, 3 pp

"Vestnik Svyazi - Elektro Svyaz'" No 11 (80)

The construction, regulation, and operation of the  
final amplifier of a high power short wave trans-  
mitter. The greatest task seems to be full use of  
all the power tubes for all ranges of working fre-  
quencies. This well-illustrated article discusses  
ways and means of attaining these ideal objectives.

19T100

02-48 EPA(a)-2/SNT(-)EPF(c)/EPF(n)-2/EPR/EWP(j)/EWP(t)/EWP(b)/EWA(c)

1946

SOURCE: AN SSSR. Izvestiya. Seriya khimi. nauk. 1946

TOPIC TAGS: spectrum analysis, acetylene, acetylene compound, lithium, lithium compound, sodium, sodium compound, potassium, potassium compound

ABSTRACT: The infrared spectra of certain aliphatic and aromatic acetylenides of lithium, sodium and potassium were measured with a Fourier transform spectrometer. The results are compared with those of other authors.

Card 1 of 2

I. 40000-65

ACCESSION NR: AP5006412

alkine group occurred in the order  $Li + Na + K$ . Orig. art. has: 1 table, 1 figure.

ASSOCIATE: Khimicheskoy Institut im. L. V. Tartakovsky Physical-Chemical  
Institute

SUBMITTED: 01Mar63

ENCL: 00

SUB CODE: OC, CP

NO REF SERV: 00

TRAIL: 00

Card 2/2



PYASKOVSKIY, Viktor Nikolayevich; TIMIN, Aleksandr Ivanovich;  
MALKOVA, I., red.; NIKOLAYEVA, T., tekhn.red.

[Airplanes over the fields] Samolet nad poliami. Kaliningrad,  
Kaliningradskoe knizhnoe izd-vo, 1960. 75 p. (MIRA 13:12)

(Aeronautics in agriculture)  
(Spraying and dusting equipment)

US3R / Weeds and Weed Control.

N

Abs Jour : Ref Zhur' - Biologiya, No 13, 1958, No. 58807

Author : Timin, A. M.

Inst : Not given

Title : Weed Control on Newly Developed Lands

Orig Pub : Zemledeliye, 1957, No 10, 47-50

Abstract : Early plowing of virgin and fallow land at a depth of 22 cm with a moldboard with plowpoints is recommended. Subsequent annual fall plowing, also with moldboard, or an alternation, every other year, of shallow plowing and plowing with moldboard is recommended, on the basis of observation carried out in the Omsk Oblast. These observations take into account the degree of choking of sowing due to weeds and the height of the crop on virgin lands. Shallow plowing on virgin lands with a moldboard, and what is

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USSR / Weeds and Weed Control.

N

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58807

worse, plowing without moldboard, especially when  
disk shallow plows are used, cause considerable choking  
due to the seeds of weeds. -- N. N. Sokolov

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*Timin A.M.*  
TIMIN, A.M.

Controlling weeds on newly reclaimed lands. Zemledelie 5 no.10:47-50  
0 '57. (MIRA 10:11)

(Weed control)